



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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D206-667-103
Job Sheet 200904



Part No: D206-667-103

Job Qty: 1 pcs

Part Name: Fwd Crosstube - High 206L / L1 / L3 / L4



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/18/19

Job Tracking No:

Due Date: 10/18/19

Created By: Marie Lajeunesse

Type: Stock

Description: SIOP

Note: DWG DSI9565 REV A , DSI9628 REV A , D206-667-143 REV C (DEO) IPP Rev:F 05.09.01 Add holes for compatibility with Bell Skidtubes KJ/JLM IPP Rev:G 08-06-03 update per DSI9415 (ECN1198) DD IPP Rev: H 08.11.17 QC5 was QC6 at step 12 KJ verified: EC IPP Rev:I 08-12-15 add magnobond DD verified:EC IPP Rev J 09.01.06 ECN 08-562 EC verified:DD IPP Rev:K 09-01-19 as per DSI9439 DD verified:EC IPP REV:L 11.08.05 PER ECN 11-615 DD VERF:EC IPP REV:M 12.08.20 DSI9628 revA (ECN12-631) DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard	Workcenter/Supplier		Sign-off
					Setup Hrs Run Hrs	Workcenter / Supplier	Lead Time	
120	Crosstubes - Bend - 1	1 pcs		10/18/19	0.50 1.00	Crosstubes - Bend		
130	QC 15	1 pcs		10/18/19	0.00 0.00	QC 15 - 12		
						QC 15 - 3		
						QC 15 - 47		
						QC 15 - 49		
						QC 15 - 58		
						QC 15 - 9		
						QC 15 - 68		
140	Crosstubes - 2 - B4B	1 pcs		10/18/19	0.00 4.00	Crosstubes - 1 - B4B		
						Crosstubes - 2 - B4B		
						Crosstubes - 3 - B4B		
						Crosstubes - 4 - B4B		
150	Crosstubes - 3 - B4B	1 pcs		10/18/19	0.00 0.31	Crosstubes - 1 - B4B		
						Crosstubes - 2 - B4B		
						Crosstubes - 3 - B4B		
						Crosstubes - 4 - B4B		
160	QC 7	1 pcs		10/18/19	0.00 0.00	QC 7 - 10		
						QC 7 - 13		
						QC 7 - 14		
						QC 7 - 15		
						QC 7 - 17		
						QC 7 - 18		
						QC 7 - 19		
						QC 7 - 2		
						QC 7 - 28		
						QC 7 - 3		
						QC 7 - 30		

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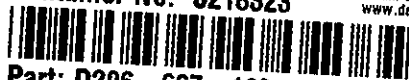
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DART
AEROSPACE

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Container No: S218323



Part: D206-667-103

Job No: 200904

Serial No/Batch: S218323

Revision:

Inspector:

Exp Date:

Instructions: TC STC SH01-5 Issue 3, FAA STC SR01304NY 05/12/15, JCAB JAI

				QC 7 - 34	
				QC 7 - 36	
				QC 7 - 37	
				QC 7 - 41	
				QC 7 - 47	
				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	
				QC 7 - 67	
				QC 7 - 40	OCT 3 0 2019
				QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				QC 7 - 76	
170 QC 5	1 pcs	10/18/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	OCT 3 0 2019
				QC 5 - 61	
				QC 5 - 81	
180 Outsource - 2 - NDT per QSI038	1 pcs	10/18/19		SKY002-VC	
190 Packaging 2-1 - Receive - B4B	1 pcs	10/18/19	0.00 0.00	Packaging 2 - 1 - B4B	
				Packaging 2 - 2 - B4B	
				Packaging 2 - 3 - B4B	
				Packaging 2 - 5 - B4B	
				Packaging 2 - 4 - B4B	
				Packaging 2 - 6 - B4B	
				Packaging 2 - 7 - B4B	
				Packaging 2 - 8 - B4B	
				Packaging 2 - 9 - B4B	
				Packaging 2 - 10 - B4B	
				Packaging 2 - 11 - B4B	
				Packaging 2 - 12 - B4B	
				Packaging 2 - 13 - B4B	
				Packaging 2 - 14 - B4B	

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				Packaging 2 - 15 - B4B	
				Packaging 2 - 16 - B4B	
				Packaging 2 - 17 - B4B	
				Packaging 2 - 18 - B4B	
				Packaging 2 - 19 - B4B	
				Packaging 2 - 20 - B4B	
				Packaging 2 - 21 - B4B	
				Packaging 2 - 22 - B4B	
				Packaging 2 - 23 - B4B	
				Packaging 2 - 24 - B4B	
				Packaging 2 - 25 - B4B	
				Packaging 2 - 26 - B4B	
				Packaging 2 - 27 - B4B	
				Packaging 2 - 28 - B4B	
				Packaging 2 - 29 - B4B	
				Packaging 2 - 30 - B4B	
				Packaging 2 - 31 - B4B	
				Packaging 2 - 32 - B4B	
				Packaging 2 - 33 - B4B	
				Packaging 2 - 34 - B4B	
				Packaging 2 - 35 - B4B	
				Packaging 2 - 36 - B4B	
200 QC 5	1 pcs	10/18/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
				QC 5 - 61	
				QC 5 - 81	

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210 Spray Paint - 2 - B4B	1 pcs	10/18/19	0.00 0.25	Spray Paint - 1 - B4B	DAS 41 NOV 03 2019 9-89
				Spray Paint - 2 - B4B	
				Spray Paint - 3 - B4B	
				Spray Paint - 4 - B4B	
220 QC 14	1 pcs	10/18/19	0.00 0.00	QC 14 - 15	
				QC 14 - 2	
				QC 14 - 34	
				QC 14 - 41	
				QC 14 - 51	
				QC 14 - 58	
				QC 14 - 59	
				QC 14 - 9	
				QC 14 - 68	DAS 68 NOV 04 2019 9-89
				QC 14 - 40	
				QC 14 - 19	
				QC 14 - 43	
				QC 14 - 24	
				QC 14 - 61	
				QC 14 - 81	
230 Crosstubes - 4 - B4B	1 pcs	10/18/19	0.00 1.33	Crosstubes - 1 - B4B	
				Crosstubes - 2 - B4B	
				Crosstubes - 3 - B4B	DAS 41 NOV 08 2019 9-89
				Crosstubes - 4 - B4B	
240 QC 5	1 pcs	10/18/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	DAS 68 NOV 11 2019 9-89
				QC 5 - 9	
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
				QC 5 - 61	
				QC 5 - 81	
250 Packaging 1-1 - Pick Kit - B4B	1 pcs	10/18/19	0.00 0.00	Packaging 1 - 1 - B4B ✓	
				Packaging 1 - 2 - B4B	
				Packaging 1 - 3 - B4B	
				Packaging 1 - 4 - B4B	
				Packaging 1 - 5 - B4B	
				Packaging 1 - 6 - B4B	
				Packaging 1 - 7 - B4B	
				Packaging 1 - 8 - B4B	
				Packaging 1 - 9 - B4B	
				Packaging 1 - 10 - B4B	
				Packaging 1 - 11 - B4B	
				Packaging 1 - 12 - B4B	
				Packaging 1 - 13 - B4B	
				Packaging 1 - 14 -	

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						B4B	
						Packaging 1 - 15 - B4B	
						Packaging 1 - 16 - B4B	
						Packaging 1 - 17 - B4B	
						Packaging 1 - 18 - B4B	
						Packaging 1 - 19 - B4B	
						Packaging 1 - 20 - B4B	
						Packaging 1 - 21 - B4B	
						Packaging 1 - 22 - B4B	
						Packaging 1 - 23 - B4B	
						Packaging 1 - 24 - B4B	
						Packaging 1 - 25 - B4B	
						Packaging 1 - 26 - B4B	
						Packaging 1 - 27 - B4B	
						Packaging 1 - 28 - B4B	
						Packaging 1 - 29 - B4B	
						Packaging 1 - 30 - B4B	
						Packaging 1 - 31 - B4B	
						Packaging 1 - 32 - B4B	
						Packaging 1 - 33 - B4B	
						Packaging 1 - 34 - B4B	
						Packaging 1 - 35 - B4B	
						Packaging 1 - 36	
						QC 4 - 28	
						QC 4 - 58	
						QC 4 - 69	
						QC 4 - 9	
						QC 4 - 46	
						QC 4 - 68	
						QC 4 - 72	
						QC 4 - 74	
						QC 4 - 75	
						Packaging 3 - 1 - B4B	
						Packaging 3 - 2 - B4B	
						Packaging 3 - 3 - B4B	
						Packaging 3 - 4 - B4B	
						Packaging 3 - 5 - B4B	
						Packaging 3 - 6 - B4B	
						Packaging 3 - 7 - B4B	
						Packaging 3 - 8 - B4B	
						Packaging 3 - 9 - B4B	
						Packaging 3 - 10 -	
260	QC 4	1 pcs	10/18/19	0.00	0.00		
270	Packaging 3-1 - Stock - B4B	1 pcs	10/18/19	0.00	0.00		

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				B4B		
				Packaging 3 - 11 - B4B		
				Packaging 3 - 12 - B4B		
				Packaging 3 - 13 - B4B		
				Packaging 3 - 14 - B4B		
				Packaging 3 - 15 - B4B		
				Packaging 3 - 16 - B4B		
				Packaging 3 - 17 - B4B		
				Packaging 3 - 18 - B4B		
				Packaging 3 - 19 - B4B		
				Packaging 3 - 20 - B4B		
				Packaging 3 - 21 - B4B		
				Packaging 3 - 22 - B4B		
				Packaging 3 - 23 - B4B		
				Packaging 3 - 24 - B4B		
				Packaging 3 - 25 - B4B		DAS 78
				Packaging 3 - 26 - B4B		9-89
				Packaging 3 - 27 - B4B		
				Packaging 3 - 28 - B4B		
				Packaging 3 - 29 - B4B		
				Packaging 3 - 30 - B4B		
				Packaging 3 - 31 - B4B		
				Packaging 3 - 32 - B4B		
				Packaging 3 - 33 - B4B		
				Packaging 3 - 34 - B4B		
				Packaging 3 - 35 - B4B		
				Packaging 3 - 36 - B4B		
275	DC - 1 - B4B	1	10/18/19	0.00 0.00	DC - 1 - B4B	DAS 21
		pcs			DC - 2 - B4B	9-89
280	QC 21 - FG	1	10/18/19	0.00 0.00	QC 21 - FG - 21	DAS 21
		pcs			QC 21 - FG - 70	9-89
					QC 21 - SA - 53	21
					Broussard	9-89
Part Op 120 - CNC Alpha 160 Bender - Bend tube as per Dwg D206-667-143 using CNC bender program Descriptions: 130 - QC15- Crosstube Dimensional Check 140 - Crosstubes ***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: ***** 1- Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill all (3) top holes. Holes facing inboard. ***** ENSURE PROPER JIG POSITIONING BEFORE DRILLING***** , VERIFIED BY: ***** 2- Drill Fwd rivet holes using drill Jig DT8787 fwd as per Dwg D206-667-143. Note: Fwd side has						

3x top holes. Facing inboard. 3- C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint. 4- Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins. Drill ONLY 2 top holes ONLY plug most bottom holes to prevent accidental drilling. Drill holes and ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes. 5- Drill Aft rivet holes using drill Jig DT8787 aft as per Dwg D206-667-143. 6- C'sink holes as per Dwg D206-667-147. Allow rivet to sit below surface to compensate for paint. 7- Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff (Do not engrave on outside of tube) 8- *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

150 - Crosstubes Chemical Conversion ***IMMEDIATELY AFTER GRINDING***

160 - QC7-Inspect Chemical Conversion Coat

170 - QC5- Inspect part completeness to step on W/O

180 - Outsource process - NDT per QSI038 4.1 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

190 - Receive & Inspect for Damage & Mat'l Certs - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

200 - QC5- Inspect part completeness to step on W/O - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***

210 - *Spray Paint / NDT Room - ** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** ** MASK AREA UNDER CLAMP PRIOR TO PAINTING AS PER DWG DEO*** 1-Prime inside and outside crosscube as per QSI 005 4.2

2-Paint outside crosscube with White Imron as per QSI 005 4.2 PRIME: 5187223 Start Time: _____ Finish Time: _____ PAINT: 5213125

220 - QC14- Inspect Spray Paint - Wrap in plastic bag to protect from scratches

230 - Crosstubes - 2-Install supports with Proseal 890 per D206-667-143 (DEO) and QSI 015 3-Install supports clamps Using Dt9565 as per Dwg D206-667-143 (DEO), Torque to 80-100 IN-LBS. 4-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint. Ps 5229888 exp 6/20

240 - QC5- Inspect part completeness to step on W/O - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.*** **VERIFY RESISTANCE PER NOTE 18 AND DWG DEO***

250 - Pick Kit

260 - QC4- 100% Inspect kits for completeness - ***VERIFY BY _____ BATCH # TO MATCH W/O

270 - Identify and pack for shipping as per PPP D206-667-103 Location : FG103

275 - Document Control - Photocopy bluefile and create labels as per PPP D206-667-103 CHG006

280 - QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D206-667-103TRN	Crosstube Turning Detail	1 pcs (1 ea)	120-Crosstubes - Bend - 1	<u>5191730</u>
D2873-043	Nut Plate Assembly	2 pcs (2 ea)	230-Crosstubes - 4 - B4B	<u>5200898</u>
D2873-045	Nut Plate Assembly	2 pcs (2 ea)	230-Crosstubes - 4 - B4B	<u>5186342</u>
D2891-1	Support 2.25	2 pcs (2 ea)	230-Crosstubes - 4 - B4B	<u>5190655</u>
D3595-063-395	Rubber Cushion 0.63" Wide X 3.95" Long	4 pcs (4 ea)	230-Crosstubes - 4 - B4B	<u>5218262</u>
MS20601-AD4W8	Rivet	14 Ea (14 ea)	230-Crosstubes - 4 - B4B	<u>5176559</u>
MS21920-20	Clamp	4 Ea (4 ea)	230-Crosstubes - 4 - B4B	<u>5103843</u>
AN742D36	Plain Clamp Loop	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS21042-3	Nut use MS21042L3 per QSI 017	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS27039-1-08	Screw	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
MS9165-05	Bracket	2 Ea (2 ea)	230-Crosstubes - 4 - B4B	
NAS1149C0332R	Washer (AN960C10L)	4 Ea (4 ea)	230-Crosstubes - 4 - B4B	
AN5-30A	Bolt	4 Ea (4 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5166980(x1) 5208330(x1) ✓</u>
AN5-32A	Bolt	4 Ea (4 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5119858 ✓</u>
AN5-7A	Bolt	10 Ea (10 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5119017-2 ✓</u>
AN970-4	Washer	12 Ea (12 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5216018(x7) 5228587(x5) ✓</u>
MS21042L5	Nut	4 Ea (4 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5214642 ✓</u>
NAS1149D0563J	Washer	18 Ea (18 ea) ✓	250-Packaging 1-1 - Pick Kit - B4B	<u>5174288 ✓</u>

→ D206-667-017

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Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
120-Crosstubes - Bend - 1	D206-667-103TRN	1	2	0
230-Crosstubes - 4 - B4B	AN742D36	2	27	0
	D2873-043	② 5200898	45	0
	D2873-045	② 5186342	28	0
	D2891-1	② 5190655	6	0
	D3595-063-395	④ 5218262	7	0
	MS20601-AD4W8	⑭ 5176559	170	0
	MS21042-3	2	466	0
	MS21920-20	③ 5103843	55	0
D206-667-017 5189483①	MS27039-1-08	2	233	0
	MS0165-05	2	21	0
	NAS1149C0332R	4	2,998	0
250-Packaging 1-1 - Pick Kit - B4B	AN5-30A	4	78	0
	AN5-32A	4	265	0
	AN5-7A	10	3,054	0
	AN970-4	12	58	0
	MS21042L5	4	388	0
	NAS1149D0563J	18	1,296	0
Part Specifications				
Specifications could not be found.				

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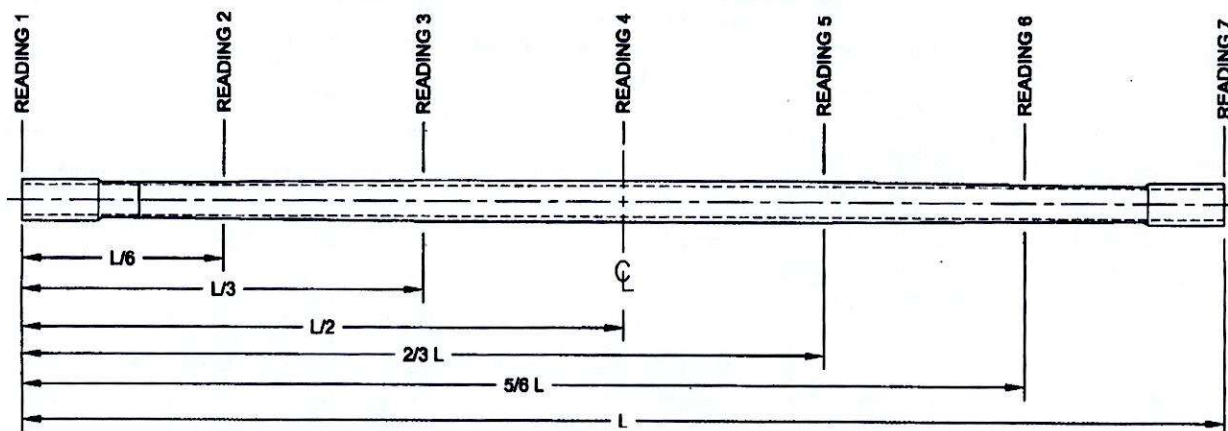
DART AEROSPACE LTD	Work Order:	200904
Description: Crosstube Assembly (206L High Fwd)	Part Number:	D206-667-143
Inspection Dwg: D206-667-143 Rev: C		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000					
	1.982	+0.005/-0.000					
	2.019	+0.005/-0.000					
	2.058	+0.005/-0.000					
	2.097	+0.005/-0.000					
	2.136	+0.005/-0.000					
	2.176	+0.005/-0.000					
	2.201	+0.005/-0.000					
	0.125	+/-0.010					
	0.400 x 30°	+/-0.010					
	R0.063	+/-0.010					
	R0.500	+/-0.010					
	4.438	+/-0.030					
SIDE B	104.98	+/-0.020					
	2.240	+0.005/-0.000					
	1.982	+0.005/-0.000					
	2.019	+0.005/-0.000					
	2.058	+0.005/-0.000					
	2.097	+0.005/-0.000					
	2.136	+0.005/-0.000					
	2.176	+0.005/-0.000					
	2.201	+0.005/-0.000					
	0.125	+/-0.010					
	0.400 x 30°	+/-0.010					
	R0.063	+/-0.010					
	R0.500	+/-0.010					
	4.438	+/-0.030					

DART AEROSPACE LTD	Work Order:	
Description: Crosstube Assembly (206L High Fwd)	Part Number:	D206-667-143
Inspection Dwg: D206-667-143 Rev: C		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"						0.035"
READING 2 L=						
READING 3 L=						
READING 4 L=						
READING 5 L=						
READING 6 L=						
READING 7 L=						

Calibration Result

Actual Block Thickness: _____

Sitiescan 250 Measured Thickness: _____

Measured by:		Audited by:		Preliminary Approval:	
Date:		Date:		Date:	

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	10.09.13	Dwg Rev updated	KJ	
D	12.06.04	Wall thickness form added	KJ	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D8002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

GENERAL NOTES:

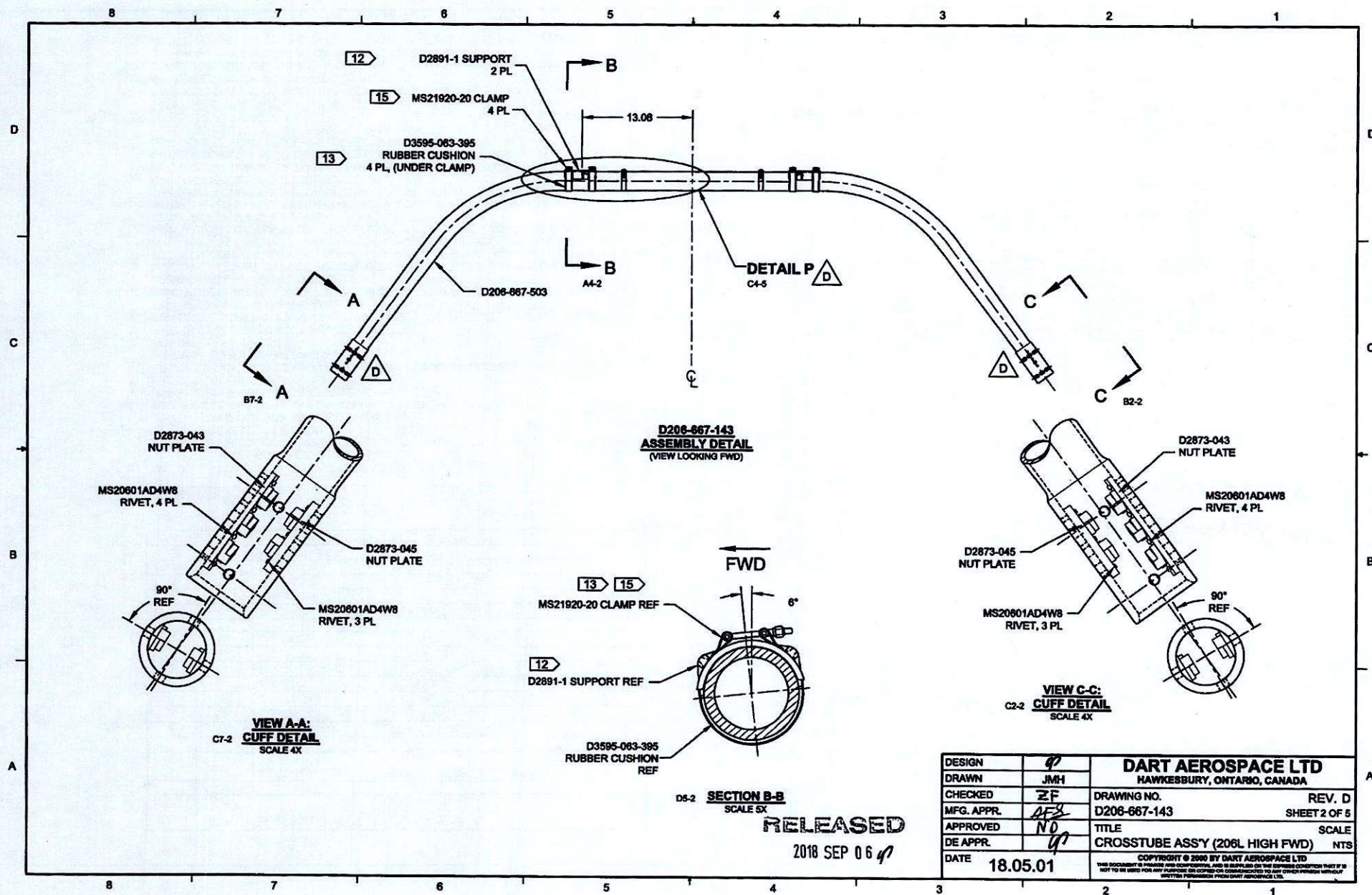
- MATERIAL: MANUFACTURED FROM D8002-115
FINISHED LENGTH = 104.98±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 15.5 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- MASK AREA UNDER CLAMP PRIOR TO PAINTING.
- SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSTUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT.
- PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MEGOHMS.

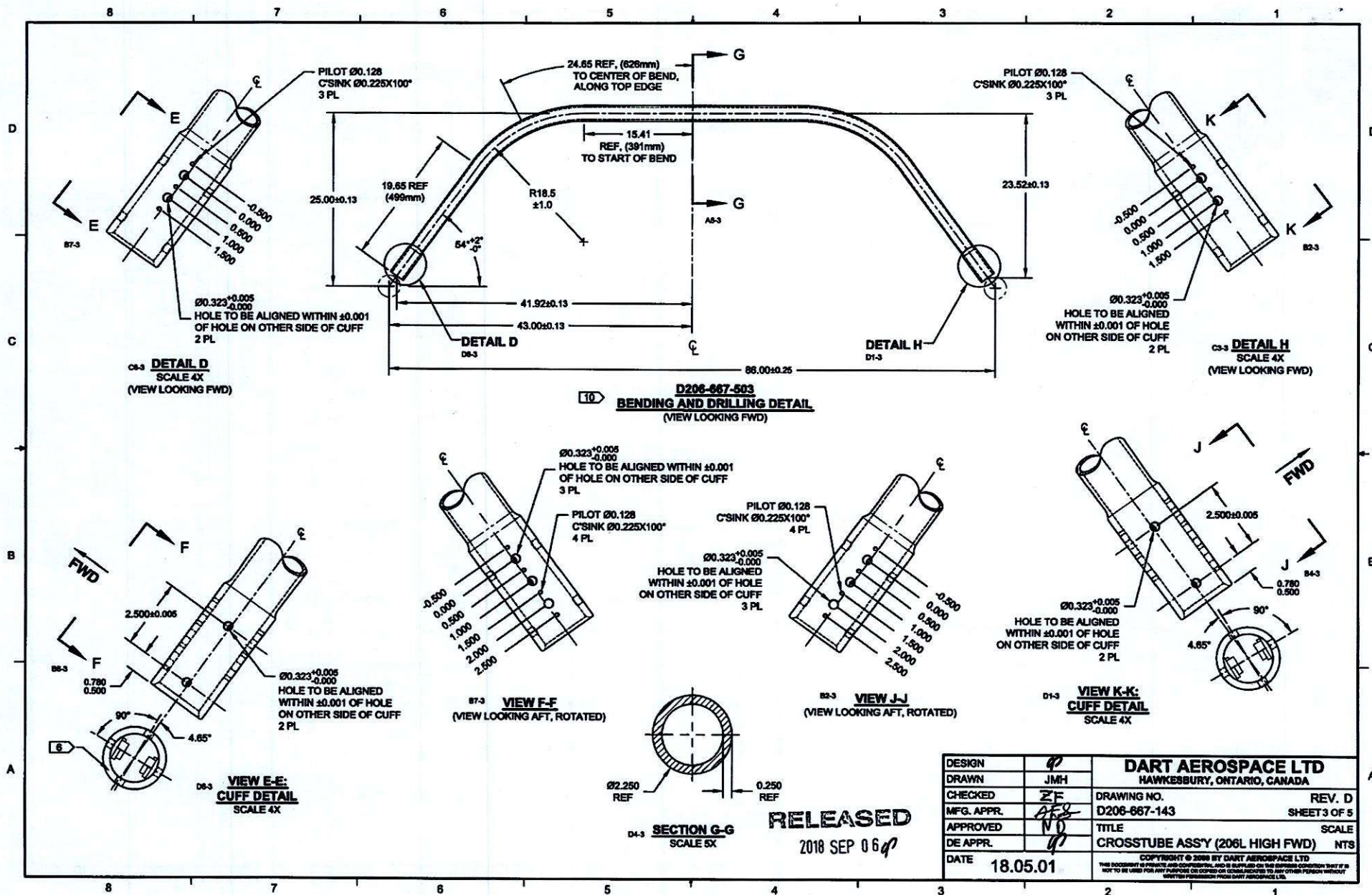
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2018 SEP 06
EN 14-747

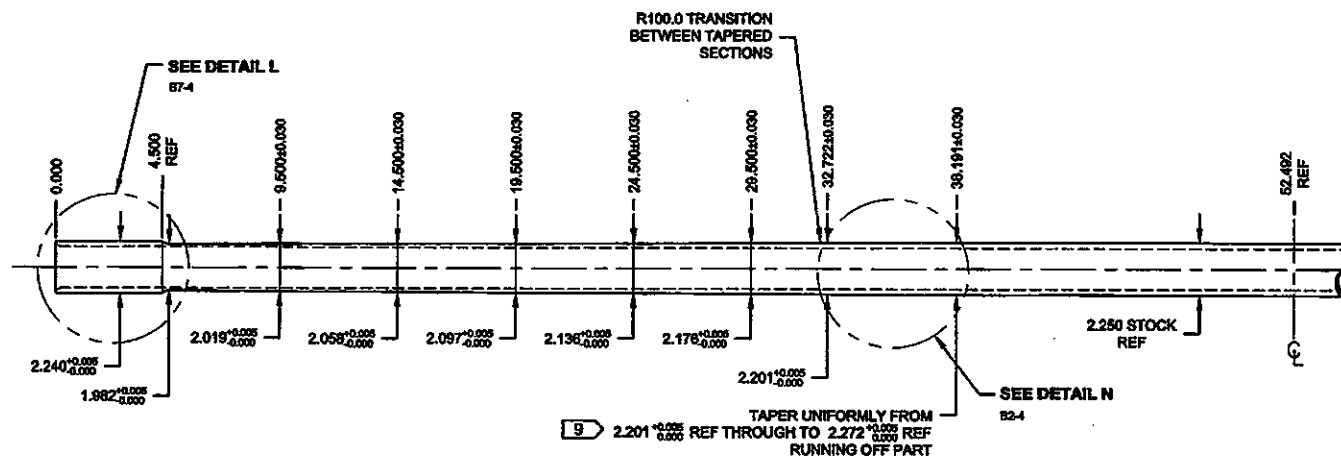
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WITHOUT NOTICE
WORK ORDER
NO. 2009 04 M45
19-08-19

D	REVISE SHEET 2 ASSEMBLY DETAIL HOLE PATTERN PER CAR18-221. UPDATE PARTS LIST AND GENERAL NOTES 12 & 15 TO INCORPORATE DEO C-1. ADD ITEMS 10-14 TO PARTS LIST, ADD GENERAL NOTES 16-18 AND ADD SHEET 5 TO INCORPORATE DEO C-2.	JMH	18.05.01
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2895-400-894 (ZN D8-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.08
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	JP		
DRAWN	JMH		
CHECKED	ZE		
MFG. APPR.	AFS		
APPROVED	NO		
DE APPR.	JP		
DATE	18.05.01		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D206-667-143 TITLE CROSSTUBE ASS'Y (206L HIGH FWD) SCALE NTS SHEET 1 OF 5 REV. D COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

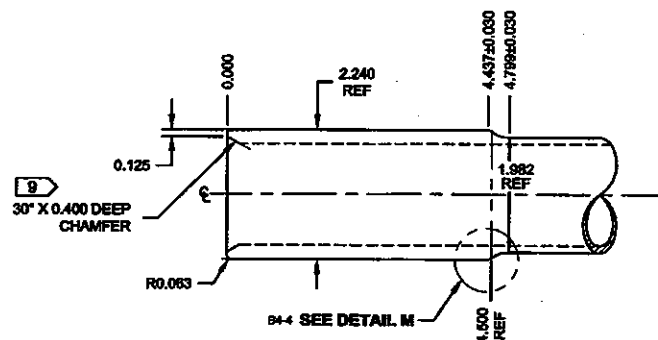




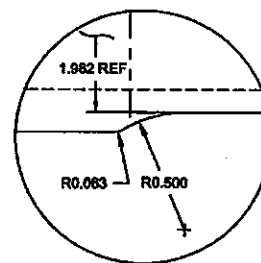
DESIGN	4	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFS	D206-667-143	SHEET 3 OF 5
APPROVED	ND	TITLE	SCALE
DE APPR.	4	CROSSTUBE ASSY (206L HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
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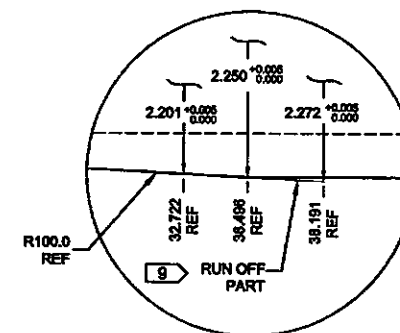
TURNING DETAIL



DETAIL L:
D7-4 CROSS-TUBE CUFF
NOT TO SCALE



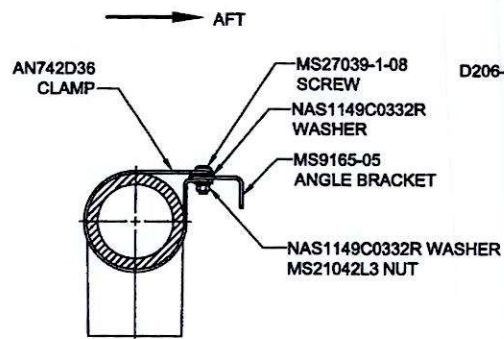
DETAIL M:
A6-4 CUFF TRANSITION
NOT TO SCALE



DETAIL N:
C4-4 TAPER RUN-OFF
NOT TO SCALE

RELEASED
2018 SEP 06

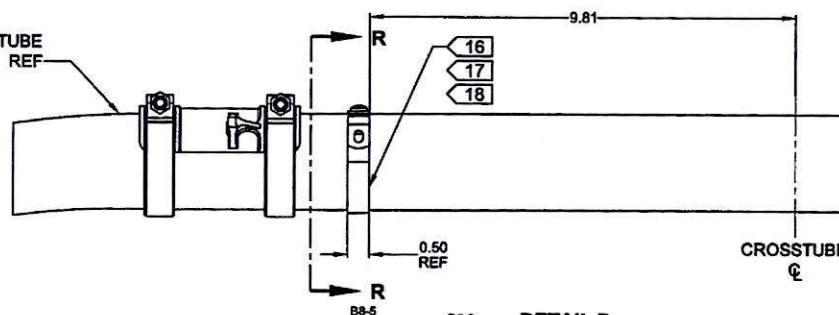
DESIGN	40	DART AEROSPACE LTD HAWKESSBURY, ONTARIO, CANADA	
DRAWN	JMH		
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AF	D206-867-143	SHEET 4 OF 5
APPROVED	NO	TITLE	SCALE
DE APPR.	40	CROSSTUBE ASSY (206L HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR OTHER OR REPRODUCED IN ANY MANNER WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



C4-S **SECTION R-R**



D206-667-503 CROSSTUBE
REF



D5-2 **DETAIL P**
BONDING STRAP INSTALLATION 2 PL



RELEASED
2018 SEP 06 4P

DESIGN	4P	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFB	D206-667-143	SHEET 5 OF 5
APPROVED	ND	TITLE	SCALE
DE APPR.	4P	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DATE	18.05.01	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

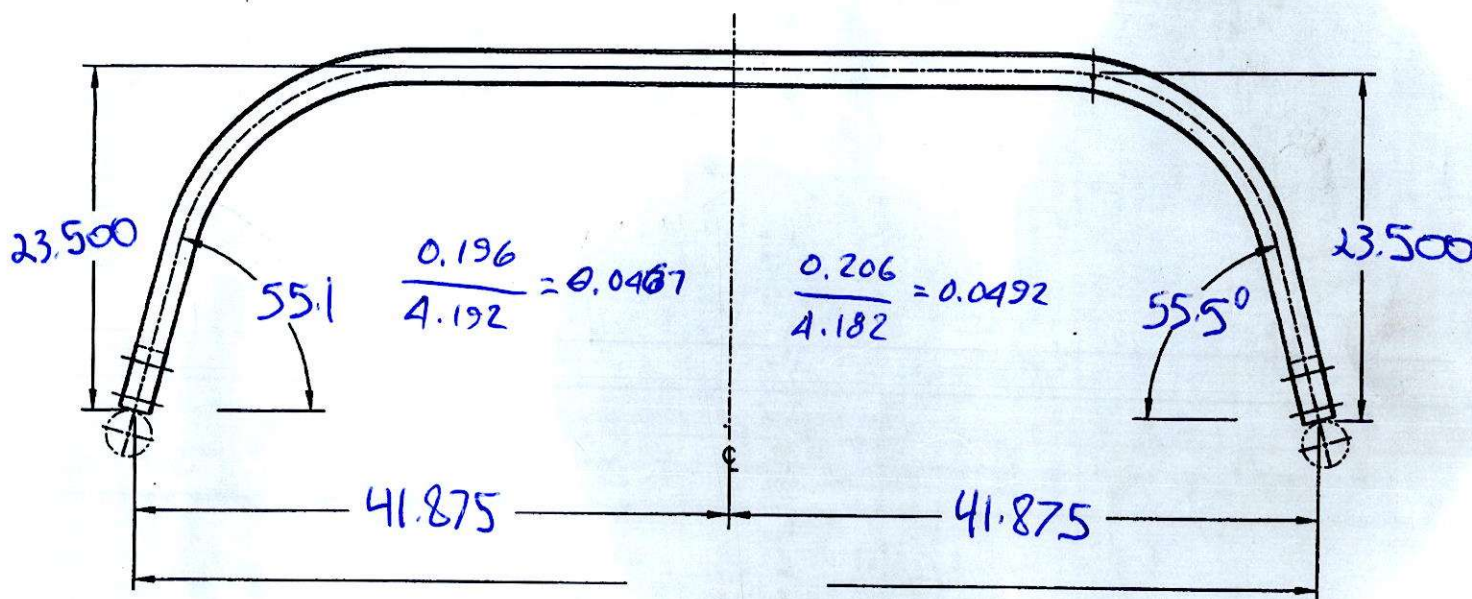
NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

DART AEROSPACE LTD		Work Order:	
Description: Crosstube High Fwd (206L)		Part Number:	D206-667-103
Inspection Dwg: D206-667-143	Rev: C	Page 1 of 1	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10
Bending Passes	10	--
Crushing	--	6%



1.998
2.194

	Side A	Side B
Bending Passes		
Crushing	4.7%	4.9%
Comments		

1.988
2.191

QC15 Inspection	DAS
Date	68 SEP 30 2019

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	
D	12.04.16	Added bending, crushing dimensions	KJ	

501
11-63

222

100

91

223

222

100



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER POHB044920



Supplier: SKY002-VC
Skyservice
6120 Midfield Road
Mississauga
ON
L5P 1B1 Canada
Phone: 905-678-5636
Fax: 905-678-5841

Attention: Jenne, Heather

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: POHB044920

PO Date: 10/29/19

Due Date: 10/31/19

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Guerin, Kimberley
Phone: 613-632-5200 Ext: 298
kguerin@dartaero.com

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items

Line Item	Job	Part	Drawing	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	200370	D3011- 1	D3011 D	Rappel Slide Bar : Various STC's (Outsource process - NDT per QSI038 4.1)1- LPI AS PER ASTM 1417 LEVEL 2 AS PER DWG D3011 2- Certificate of conformity is required	Firmed X4	-	10/31/19	4 pcs	0 pcs	4 pcs	\$70.00/pcs	\$280.00
2	197280	D407- 667- 205	IIN-D206-667 / D407-667-245 D / G	Aft Crosstube - High 407 : TC STC SH01-5 Issue 3, FAA STC SR01304NY 05/12/15, JCAB JAPAN STC-32- OSA 02/02/28, EASA STC EASA.IM.R.S.01179 06/07/03, BRAZIL 2009S08-16 09/08/25, BRAZIL 2009S08-17 09/08/25 *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 0380	Firmed X1	-	10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
	197279				Firmed X1		10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
	197727				Firmed X1		10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
	197728				Firmed X1		10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
Sub Total:								4	0	4		\$610.00

Plex 10/31/19 2:47 PM Dart.Guerin.Kimberley



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER POHB044920



Items

Line Item	Job	Part	Drawing	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
2	200903	D206-667-103	DSI9565, DSI9628, D206-667-143	Fwd Crosstube - High 206L / L1 / L3 / L4 : TC STC SH01-5 Issue 3, FAA STC SR01304NY 05/12/15, JCAB JAPAN STC-32-OSA 02/02/28, EASA STC EASA.IM.R.S.01179 06/07/03, BRAZIL 2009S08-16 09/08/25, BRAZIL 2009S08-17 09/08/25 Outsource process - NDT per QSI038 4.1 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE***	Firmed X	-	10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
	200904				Firmed X		10/31/19	1 pcs	0 pcs	1 pcs	\$152.50/pcs	\$152.50
Sub Total:								2	0	2		\$305.00

Grand Total: \$1,195.00

Order Notes

Procurement Quality Clauses
A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retension of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

[Handwritten signature]

Plex 10/31/19 2:47 PM Dart.Guerin.Kimberley

**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

10105 Ryan Avenue, Dorval, Quebec, H9P 1A2

TCCA AMO 53-89 / EASA 145.7142 / BDA AMO 385

WO #: MWO42375	Customer: Dart Aerospace Ltd.	Dept: NDT YUL	Reference: POHB041920
Descr:	PN:	S/N:	Qty: 1
Make:	Model:	Reg:	A/C S/N:
TSN:	CSN:	TSO:	
Task: UNSCHEDULED			Sequence: 1

Work Required:

CARRY OUT NDT (LIQUID PENETRANT CRACK TEST) ON THE FOLLOWING 6 CROSSTUBES and 4 RAPPEL SLIDE BARS:

P/N: D3011-1 RAPPEL SLIDE BARS JOB SHEET# 200370 (4 ea)

P/N: D407-667-205 AFT CROSSTUBE-HIGH 407

1- JOB SHEET# 197280 2- JOB SHEET# 197279

3- JOB SHEET# 197727 4- JOB SHEET# 197728

P/N: D206-667-103 FWD CROSSTUBE-HIGH 206L/L1/L3/L4

5- JOB SHEET# 200903 6- JOB SHEET# 200904

BA
4
9-8

Action Taken:	Date:	Initial/Stamp:
LIQUID PENETRANT INSPECTION CARRIED OUT ON ITEMS LISTED ABOVE AS PER ASTM1417M-16		
-NO CRACK FOUND.	31 oct 2019	
PEN.(ZL37 , MPO21721) DEV.(SKD-S2, MPO11715), CLEANER(SKC-S, MPO MPO19368)		

Miscellaneous AD Review Performed: ☐ No applicable AD's noted ☐ Refer to action taken for applicable AD's

Description	Location	P/N	Qty	Batch	S/N Off	S/N On

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

Signature:	ACA/SCA Stamp	Date:
Name: CHRISTIAN BRIEN		31 oct 2019

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
			X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
					X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10	*2	*2	*2		*2		D2891-1	SUPPORT
11				*2			D2892-1	SUPPORT
12						*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4			D3595-063-450	RUBBER CUSHION
15						*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18						*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4		AN5-32A	BOLT
20				4		4	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	8	8	8	8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42		2					D2872-043	NUT PLATE
43		2					D2872-045	NUT PLATE
44	10		10				AN5-7A	BOLT
45		10		10	10	10	AN5-10A	BOLT
46	4	10	4		4		AN5-30A	BOLT
47				4		4	AN5-32A	BOLT
48			12				AN970-4	WASHER (OPTIONAL)
49		6					MS21042L5	NUT (OR MS21042-5)
50	10	12	10	10	10	10	NAS1149C0563J	WASHER (OR AN960JD516)
60		1					D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245
ASSEMBLIES ABOVE

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Revision: D
Date: 11.05.01